



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

| APPLICATION NO.  | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------|------------------|
| 10/574,954   | 04/07/2006  | Toshikazu Suganuma   | 80360(47762)        | 7305             |
| 21874 7590 04/22/2008<br>EDWARDS ANGELL PALMER & DODGE LLP<br>P.O. BOX 55874<br>BOSTON, MA 02205 |             |                      |                     |                  |
| EXAMINER   |             |                      |                     |                  |
| CHAUDRY, ATIF H  |             |                      |                     |                  |
| ART UNIT   |             | PAPER NUMBER         |                     |                  |
| 3753   |             |                      |                     |                  |
| MAIL DATE  |             | DELIVERY MODE        |                     |                  |
| 04/22/2008   |             | PAPER                |                     |                  |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/574,954

**Applicant(s)**

SUGANUMA ET AL.

**Examiner**

ATIF H. CHAUDRY

**Art Unit**

3753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 April 2006.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-13 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-13 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 07 April 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO/IS/D)  
Paper No(s)/Mail Date 4/7/06, 7/21/06  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-2 and 8-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Ghate (US Patent 5016817).

3. Regarding claims 1 and 8, Ghate (Fig. 2, 4) discloses a liquid supply apparatus for and illustrates a method of supplying an additive liquid to a primary fluid comprising of a supply section having a supply liquid tube 154, and primary section comprising a primary circulation tube 98. In operation, the supply section fluid must inherently have larger pressure than the primary section in order to inject the additive liquid into the primary fluid. Ghate discloses pressure regulators 90 and 94 to regulate the pressure of the supply section and primary fluid section. Ghate (column 3 line 10) discloses the diameter of the supply section tube at .75 mm. Regarding claims 2 and 9, tube 154 of Ghate is seen as having a “hollow fiber shape”.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 3753

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
3. Claims 4-7 and 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ghate (US Patent 5016817).
4. The claims do not add any new elements except for defining optimum ranges of flow rate, concentration ratio, or pressure ratio. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used the claimed optimum ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233
5. Claims 2 and 9 are alternatively rejected under 35 U.S.C. 103(a) as being unpatentable over Ghate (US Patent 5016817) further in view of Laverdiere (US PG Pub 20050173003).
6. Ghate fails to disclose a hollow fiber shape circulation tube. Laverdiere (page 7, 2<sup>nd</sup> column, lines 30-35) teaches a fluid flow controller using hollow fiber tube to regulate

Art Unit: 3753

pressure drops thus control the flow rate. It would have been obvious to a person of ordinary skill in the art to have provided the mixing device disclosed by Ghate with hollow fiber tube as taught by Laverdiere in order to enable pressure and flow control.

7. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ghate (US Patent 5016817) alone or in view of Shirakashi (US PG Pub 20040206634).

8. Ghate fails to disclose ultrapure water or electrolytic solution. Shirakashi (page 10 para 119) teaches mixing of electrolytic solutions with ultrapure water in order to reduce the specific resistance of ultrapure water. It would have been obvious to a person of ordinary skill in the art to have used the device disclosed by Ghate for mixing any liquids including electrolytic solution and ultrapure water. Alternatively, it would have been obvious in view of Shirakashi to use the Ghate system to mix electrolytic solution & ultrapure water.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Atif H. Chaudry whose telephone number is 571-270-3768. The examiner can normally be reached on Mon-Fri Alternate Friday off 9-5 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Huson can be reached on 571-272-4887. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3753

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Atif H Chaudry/  
Examiner, Art Unit 3753  
**2008**

/Stephen M. Hepperle/  
Primary Examiner, Art Unit 3753